

THAT CLAIMED IS:

1. A transformer assembly comprising:
 - a transformer tank having a chamber containing a cooling fluid;
 - a plurality of bushings mechanically interfaced with the transformer tank;
 - a primary winding having first and second ends, each of the ends electrically connected to a bushing to form a delta or wye connection; and
 - an inductor electrically connected to the primary winding for filtering, the inductor positioned in the chamber.
2. The transformer assembly as defined in Claim 1, wherein the inductor is electrically connected between one of the bushings and the primary winding for filtering harmonics created by a variable speed drive.
3. The transformer assembly as defined in Claim 1, further comprising a capacitor electrically connected to the inductor and positioned external to the transformer tank.
4. The transformer assembly as defined in Claim 1, wherein the cooling fluid is a liquid and wherein the primary winding and the inductor are at least partially immersed in the liquid.
5. The transformer assembly as defined in Claim 1, further comprising an inductor bypass having a first end and second end, the first end of the bypass connected to one of the plurality of bushings, the second end of the bypass connected between the inductor and the primary winding to thereby selectively bypass the inductor to allow the transformer assembly to be used without the inductor.
6. The transformer assembly as defined in Claim 1, further comprising a secondary winding including a set of taps and a corresponding set of tap switches, each selectively electrically connected to one of the taps to provide for a discrete voltage selection.

7. A three-phase transformer assembly comprising:
 - a housing defining a tank, a chamber formed in the tank, and an insulating dielectric cooling liquid positioned in the chamber to cool transformer components within the chamber;
 - a plurality of primary bushings mechanically interfaced with the transformer tank;
 - three primary windings, each of the primary windings having a first and second end electrically connected to the primary bushings, each of the primary windings positioned around a magnetic core element and at least partially immersed in the dielectric cooling liquid;
 - a plurality of secondary bushings mechanically interfaced with the transformer tank;
 - three secondary windings, each of the secondary windings each having a first and second end electrically connected to the secondary bushings, each of the secondary windings positioned around the magnetic core element and at least partially immersed in the dielectric cooling liquid;
 - a plurality of inductors positioned in the chamber of the tank and at least partially immersed in the dielectric cooling liquid, each of the inductors electrically connected between one of the primary bushings and corresponding primary windings; and
 - a capacitor bank including a plurality of capacitors positioned external to the transformer tank, each of the capacitors within the capacitor bank electrically connected to one of the inductors.
8. The transformer assembly as defined in Claim 7, further comprising a plurality of inductor bypasses having a first end and second end, the first end of each bypass connected to one of the plurality of primary bushings, the second end of each bypass connected between one of the inductors and the primary windings to thereby selectively bypass the respective inductor to allow the transformer assembly to be used without the inductors.
9. The transformer assembly as defined in Claim 7, wherein at least one of the secondary windings includes a set of taps and a corresponding set of tap switches, each selectively electrically connected to one of the taps to provide for a discrete voltage selection.

10. The transformer assembly defined in Claim 7, a wherein the capacitor bank is mounted to the housing of the tank.

11. An electrical variable speed drive system, comprising:

a variable frequency drive unit;

a transformer electrically connected to the variable frequency drive unit to step-up or step-down voltage received from the variable frequency drive unit, the transformer having a housing defining a tank, a chamber formed in the tank, a core, and a primary and a secondary winding positioned in the tank to substantially surround at least portions of the core in the chamber; and

a low pass filter including an inductor positioned within the chamber and electrically connected between an output of the variable frequency drive unit and the primary winding of the transformer and a capacitor positioned external to the tank and electrically connected to the inductor for filtering harmonics created by the variable frequency drive.

12. The variable speed drive system as defined in Claim 11, wherein the chamber of the transformer tank contains a dielectric liquid for cooling the inductor and the primary and secondary windings positioned therein, the inductor being at least partially immersed in the dielectric liquid.

13. A method of transforming electricity, comprising:

(a) providing a transformer tank containing a primary winding, a secondary winding, and an inductor electrically connected to the primary winding, and providing a capacitor electrically connected to the inductor;

(b) supplying AC power to the primary winding;

(c) filtering the AC power with the inductor and capacitor;

(d) delivering power from the second winding; and

(e) cooling the inductor and the windings with a cooling fluid in the tank.

14. The method of transforming electricity as defined in Claim 13, wherein step (a) comprises mounting the capacitor exterior of the tank.

15. The method of transforming electricity as defined in Claim 13, wherein step (e) comprises placing a dielectric liquid in the tank and at least partly immersing the inductor and the windings.

16. The method of transforming electricity as defined in Claim 15, wherein step (e) comprises circulating the dielectric liquid through a recirculation line to cool the dielectric liquid.